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ABSTRACT

The project was designed to examine the way in which institutions of higher education change, or fail to change, the educational aspirations of women students and to test the explanatory power of two dominant sociological reference group theories, environmental press and relative deprivation, when applied separately to male and female undergraduates. The analyses were carried out on existing longitudinal data files developed by the American Council on Education's Cooperative Institutional Research Program. The file used consisted of 1966 freshmen who were followed up as sophomores (1967) and seniors (1970). Variations in the aspirations of men and women were found after one year of college, but these differences appear to wash-out after four years in college. The significant predictors of senior year academic self-concept are the same for men and women. The three most important predictors of senior year educational aspiration are also the same. For both men and women both relative deprivation and environmental press appear to be operating in influencing senior year educational aspirations. The relative deprivation effect is a strong one but, contrary to the theory, appears to operate directly through college grades and not through the intermediate psychological variable of academic self-concept. College selectivity is shown to have a significant and positive effect on educational aspirations, although this effect is noticeably stronger for men than for women. (JMF)

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THE IMPACT OF COLLEGES AND UNIVERSITIES ON THE EDUCATIONAL ASPIRATIONS OF WOMEN

National Institute of Education
Grant # NE-G-00-3-002

Final Report
December 31, 1976

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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The term "reference group" was first used and elaborated by Hyman (1942) and is now generally defined as a "group, collectivity, or person which the actor takes into account in some manner in the course of selecting a behavior from among a set of alternatives, or in making a judgment about a problematic issue" (Kemper, 1963:32). The individual relates himself psychologically to these groups or classifications of people and orients his behavior and attitudes to theirs.

Reference group theory has benefitted from the elaboration and refinements of scholars following Hyman (e.g., Cain, 1968; Kelly, 1952; Kemper, 1963; Merton, 1957:Ch. 9; Pollis, 1968; Shibutani, 1955; Turner, 1956; Williams, 1970) and has been instrumental in the reinterpretation of various landmark studies (e.g., Stouffer, et al., 1949; Newcomb, 1943, 1952). By attempting to understand the complex processes by which individuals relate to groups, the reference group concept provides a valuable tool for social scientists (Hyman, 1942); "It is... intimately associated with that central problem of social psychology: The relating of self to society" (Newcomb, 1951:92).

The results of Newcomb's (1943) classic study of attitude change in Bennington College Students, as well as other research (e.g., Siegel & Siegel, 1957), demonstrates that reference groups affect a person's attitudes and behavior. The relationship of levels of aspirations to reference group theory was first illustrated in an experiment by Chapman and Volkmann (1939) which served as a model for numerous other studies. They showed that one's level of aspiration is anchored in the status of his own reference set relative to other reference

sets. University students spontaneously raised their self predictions when the group with which they compared themselves was "inferior" to their own reference sets; conversely, they spontaneously lowered their self predictions when the group with which they compared themselves was "superior" to their own reference sets.

Kelley (1952) drew a distinction between two functions of reference groups: the comparative, which provides the standards of comparison for self-appraisal, and the normative, which serves as the source of the individual's norms, attitudes, and values (one group, however, may serve both functions). The comparative reference group function underlies the theory of relative deprivation and the normative reference group function, the concept of environmental press. As we shall see, it is the difference between the two functions of reference groups which has been suggested by the researchers to account for their differing explanations of the processes by which undergraduate aspirations are changed by their college environments.

Relative deprivation theory, first articulated in a military context by Stouffer, et al. (1949), emphasizes the comparative function of reference groups. This theory, applied to the college context by Davis (1966), suggests that the student compares himself to his classmates rather than deriving his norms from them. His application of relative deprivation theory holds that undergraduate aspirations are a function of the individual's self-esteem, which in turn is based upon a comparison with the salient local reference group as opposed to an absolute test score, i.e., based on national

standards. Thus, superior performance relative to the local environment should be more critical in determining self-concept and aspirations than the objective absolute level of that performance. Davis argued that a student's conception of his academic ability is an important determinant of his educational aspirations. He further contended that students use their college grades as a measure of their ability. Thus, in evaluating his academic ability, the student compares his grades with those of his classmates, and in so doing does not take account of differences among colleges in the academic ability of their students. According to this theory, if a student attends a more highly selective college and earns relatively poorer grades, his ability self-concept will be devalued, lowering his educational aspirations. As Davis (1966:31) suggests, "Counselors and parents might well consider the drawbacks as well as the advantages of sending a boy to a 'fine' college, if, when doing so, it is fairly certain he will end up in the bottom ranks of his graduating class. The aphorism 'It is better to be a big frog in a small pond than a small frog in a big pond' is not perfect advice, but it is not trivial."

Spady's (1967) data on freshmen at the University of Chicago led him to a similar conclusion, as did Werts and Watley's (1969) research. The results of Skager, et al.'s (1966) study offers additional corroboration for this line of analysis, suggesting that the more select the peer group the more likely it is that a student's confidence in his academic ability will be shaken. Skager, et al., found that students

tend to develop relatively lower estimates of their own academic ability at colleges of large size, selective admissions, large funds per student, and varied curriculum.

Environmental press theory, on the other hand, emphasizes the normative function of reference groups. It argues that student achievement and aspirations are a function of the social context and suggests that the result of the "environmental press" is to cause students' educational aspirations to conform more closely to the modal choice in the student's undergraduate environment. Thistlethwaite (1965) and Thistlethwaite and Wheeler (1966) presented evidence that various kinds of pressures of the general student body in colleges help to determine whether seniors aspire to postgraduate training and whether they actually enroll for advanced training. Using a large sample of high-ability students at 140 colleges and universities, they controlled for those personal background characteristics of the students at the time of entrance which partially predicted their senior educational aspirations and their entrance into postgraduate school. The correlation between educational aspirations and postgraduate school attendance and certain pressures of the student community (determined by asking each student to describe the demands, expectations, and activities most characteristic of students at his college) were then computed. There were positive correlations between senior educational aspirations and the strength of student pressures for intellectualism, aestheticism, and reflectiveness.

Actual attendance at postgraduate school the fall after undergraduate graduation was also positively correlated with the strength of the student body's demands and opportunities in each of these three areas. At the same time, the strength of general student opposition to faculty influence and the pressure for student camaraderie were both negatively correlated with high educational aspirations and entrance to postgraduate training. Similarly, Wallace (1965; 1966) found that changes in a student's attitude toward grades and his educational aspirations are associated with certain objective characteristics of the students in a freshman's general peer context.

The key intermediate variable in both constructs is the individual's academic ability self-concept, for it is on this factor that the relative deprivation or environmental press effects operate directly. However, each of the above investigators was forced to conduct his analysis without the aid of a direct measure of this self-concept. In a recent examination of the predictive power of these two theories, Drew and Astin (1972) used longitudinal data which contained both a pretest and post-test measure of self-concept concerning academic ability. Their findings indicated a significant effect for both models as reflected in significant partial correlations between the post-test aspirations measure and both the selectivity of the college (a measure of environmental press) and the student's grade point average (a measure of relative deprivation). They concluded that a complete theoretical model should allow for the simultaneous operation of both theories in a complex pattern rather than forcing a choice between the two.

Although the attention given women students varied from

study to study, none of them adequately dealt with the possibility that the development and change of aspirations of women differs significantly from that of men. Werts and Watley (1969) analyzed their longitudinal data separately for men and women but, as noted above, were lacking operational definitions for some of the key variables. Their earlier work (Werts & Watley, 1968), however, had acknowledged that women did not fit the same pattern as men. Davis (1966) recognized that his model was inadequate to explain the aspirations of women and commented at some length on this issue:

> Table 4 represents the result for men. Women have been excluded for the good reason that the trends reported in the remainder of this paper do not hold among them. We feel that this is not merely sweeping exceptions under the rug. The career decisions of women students are quite different from those of men in ways which make the trends discussed here less relevant for them. Specifically, the major trend for women, regardless of their personal characteristics, is away from the high-performance fields into primary and secondary education. In addition, there is considerable evidence that women are less oriented toward "career success," and the interpretation of the data presented here hinges on the assumption that concerns about success are important for career choice. Lavin implies a similar generalization when he writes, "Choice of a major field is directly related to academic performance in the case of males, but no such relationship pertains for females." (Davis, 1966:21-22)

Davis, then, side-stepped the question of women. Drew and Astin (1972) used sex as a control variable for a sample which contained both men and women. While they did not analyze the data separately for men and women, these researchers recommended such analyses as a valuable avenue for future research. Drew's (197) study of freshmen who select medicine as a probable career obtained substantially different results from analyses of samples stratified by sex and race than from a mixed

sample using race and sex as control variables. This suggests the importance of looking at identifiable and possible unique groups separately (see also Patterson 1973).

Although very little of the research in related areas dealing with the impact of higher education upon students has concerned itself with women (see, e.g., Solmon & Taubman 1973 and studies cited therein), that which has also suggests that women and men must be analyzed separately because it does not appear, as we shall see, that the findings and their concomitant explanations for men hold for women as well. There is good reason for believing that this is the case. For example, Duncan (1969) and Coleman, et al. (1970) point out that the best predictors of occupational status or income for white men are not the best predictors for black men; at least, they do not operate in the same way. Sewell, et al. (1970) state that the educational and occupational status attainment process of women has been neglected in most previous research. They speculate that a recursive model for the educational attainment of women might not differ greatly from that for men; they suggest, however, that the occupational status attainment process of women is probably more complex. Nevertheless, very little hard research has been done. (Sewell's later work is discussed below.)

Although the sexes do not differ significantly in intelligence or academic ability, the educational attainment of women is considerably lower than that of men (Folger, et al. 1970). The proportion of women completing each degree after high school is smaller than the proportion of men, and the

percentage of women declines with each higher degree. Women receive over 40 percent of the bachelor's degrees, about 33 percent of the master's, and only around 10 percent of the doctorates awarded. Sewell (1971) found that the result of equalizing women's educational opportunities would be to increase by 28 percent the number of women who obtain some education beyond high school, by 52 percent the number who attend college, and by 68 percent the number who graduate from college.

Part of the difference in educational attainments of men and women is explained by socioeconomic status (SES). Trent & Medsker (1968) found that at the low-SES level, only 40 percent of the two-fifths high school students of highest ability go to college, while 60 percent of the students from the bottom two-fifths in ability from high-SES backgrounds continue their education. Feldman & Newcomb (1969) report that a 1957 study found that the lower the SES, the smaller the percentage of women (relative to men) who attend college. This was confirmed recently by Werts (1966). In a comparison of 76,015 boys and 51,710 girls, controlling for high school grade average and father's occupation, Werts discovered that the college entrance rates of boys and girls of high SES were very similar, though among low-SES students, boys were much more likely to continue their education. Boys were also more likely than girls to continue among students with poor high school academic records. Moreover, Werts found an interaction between the independent variables, suggesting that low grades are a greater deterrent to college attendance for low-SES girls than for high-SES girls.

This is not surprising in light of Kohn's (1959a; 1959b) studies showing that working-class and middle-class parents differ in their primary expectations vis-a-vis children of different sexes and in the degree to which they treat boys and girls differently. Gordon's (1969) analysis of Educational Opportunity Survey data demonstrates that the variable most strongly correlated with sex for ninth graders is the parental aspiration index. Boys are much more likely than girls to picture their parents as holding high educational expectations for them, although these same girls earn higher grades. The Werts, Kohn, and Gordon findings suggest that the effect of significant others' influence (SOI) documented by Sewell and his colleagues (1969; 1970), is important, although perhaps in a different way, for women as well as men.

Sewell's (1971) recent work confirms this conclusion. In comparing men and women, Sewell found, not unexpectedly, that women's educational attainment is not as great as men's. More significantly, his recursive model discloses that women are most seriously disadvantaged relative to men in their level of teachers' and parents' encouragement and their own levels of educational aspirations. On the other hand, women have the advantage of achieving better high school grades and, in seeming contradiction to their lower educational aspirations, have somewhat higher occupational aspirations.

On the whole, Sewell's model tends to predict higher average educational attainment for women than they actually achieve. Since Sewell believes that socialization and family effects are already manifest in women's levels of perfcrmance,

SOI, and aspirations, all of which he measured during the high school years, he attempts to explain this discrepancy by pointing to effects immediately following high school and not included in his model.

It is possible, however, that these measures of high school performance, SOI, and aspirations do not completely reflect the negative influences on women of socialization and family, especially during the high school years. Some years ago Coleman (1961) reported that the Chicago-area high school girls he studied were caught in a "double bind," wanting to perform well but also fearing that conspicuous achievement would cause them to lose popularity with boys. More recently, Horner (1969: 38) has further refined this concept:

> A bright woman is caught in a double bind. In testing and other achievement-oriented situations she worries not only about failure, but also about success. If she fails, she is not living up to her own standards of performance; if she succeeds she is not living up to societal expectations about the female role. Men in our society do not experience this kind of ambivalence, because they are not only permitted, but actively encouraged, to do well.

For women, then, the desire to achieve is often contaminated by the motive to avoid success. Femininity and individual achievement are often viewed as two desirable, but mutually exclusive, goals. "Whereas men are unsexed by failure... women seem to be unsexed by success" (Horner, 1971: 106).

This pressure is perhaps reflected in women's higher attrition rates from college (Astin 1972; Astin & Panos 1969; Patterson & Sells 1973). Most of the research on attrition has found that, aside from ability, sex is one of the best predictors of dropping out (Astin 1971). Bayer (1969) has shown that

not only do marital and family plans exert an independent effect on the educational aspirations of high school girls, but that for women they are also the best predictors of attrition from college (Bayer 1968).

Thus, related research indicates the importance of studying women separately from men because the processes shaping the development of women are more complex.

II. METHOD.

The analyses described in Section III below were carried out using existing longitudinal data developed by the American Council on Education's (ACE) Cooperative Institutional Research Program (see American Council on Education, 1972). The specific data file to be utilized is that consisting of the cohort of first-time freshmen entering college in 1966. In that year 254,480 full-time freshmen completed questionnaires designed to elicit a wide range of biographical and demographic data, as well as information on high school activities, educational aspirations, career plans, financial arrangements, and current attitudes and values. Follow-up questionnaires were sent to approximately 60,000 of these students in August 1967 (end of first year), December 1969 (under the joint auspices of ACE and the Carnegie Commission on Higher Education), and August 1970 (after graduation). Additionally, information on college admission test scores and the student's academic performance in college was provided by college and university registrars.

Two different analysis tapes were created from the original ACE data tapes for analysis of freshman-sophomore and freshman-senior changes in educational aspirations.* The first tape consisted of every third white male (N=3,293) and every third white female (N=3,509) for whom there was complete initial (1966), first-year follow-up (1967) and registrar's data. The second tape consisted of every third white male (N=5,136) and every third white female (N=3,892) for whom there was complete initial (1966), senior-year follow-up (1970) and registrar's data.**

The operational definitions of the principal independent variables which had been used in the Drew & Astin (1972) study were carried forward in this research. For example, college selectivity, an estimate of the average academic ability of the students who enroll at the college based on national achievement test scores (Astin, 1971), was used as the indicator of environmental press, while college grades (or the "common grade point average") was used as the indicator of relative deprivation. The data contained the necessary measures

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* It was originally intended in this research to analyze occupational aspirations as well as educational aspirations of undergraduates. But it soon became apparent that on the limited budget of this small grant both analyses could not be done. Since the data on occupational aspirations would have required far more work and analysis and since there is a far smaller body of literature on occupational aspirations, it was decided to focus on educational aspirations only.

** The original ACE data tapes containing the four-year follow-up data turned out not to be in the fully completed form that was expected. Blank items, for example, had not been filled in. Accordingly, more time (both human labor and computer) was expended cleaning up the data than had been originally anticipated.

not only of college selectivity and grades but also of the individual's aptitude, initial and subsequent level of aspiration, and the student's academic ability self-concept (both initial and follow-up). In addition, a number of other variables, such as socioeconomic status, which had been shown to be significant predictors of undergraduate level of aspiration in previous research (e.g., Astin 1971; Astin & Panos, 1969; Drew & Astin, 1972) were included as controls.

The scales of educational aspiration and academic self-concept (academic ability self-rating) used were both five-point scales. The former was based upon the following items included in the initial (1966) and sophomore (1967) and senior-year (1970) follow-up questionnaires used in the ACE Cooperative Institutional Research Program:*

> What is the highest academic degree that you intend to obtain?
>
> None
> Associate (or equivalent)
> Bachelor's degree (B.A., B.S., etc.)
> Master's degree (M.A., M.S., etc.)
> Ph.D. or Ed.D.
> M.D., D.D.S., or D.V.M.
> LL.B. or J.D.
> B.D.
> Other

The five scores resulting from the coding of this variable were: 1 (none), 2 (associate), 3 (bachelor's), 4 (master's) and 5 (all others).

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* These questionnaires were first used nationally in 1966 and have continued to be used for each subsequent year's in-coming freshmen as well as for the periodic regular follow-up studies. Over 400 institutions of higher education and 2 million students have now been involved in this program.

The academic ability self-rating is based upon the following item:

> Rate yourself in each of the following traits as you really think you are when compared with the average student of your own age. We want the most accurate estimate of how you see yourself.
>
> Highest 10 Percent
> Above Average
> Average
> Below Average
> Lowest 10 Percent

The trait used to derive this scale is "academic ability."

The data base and the precise scales of aspiration and academic self-concept used in this study have been previously utilized in similar research (e.g., H. Astin et al., 1973; Drew and Astin, 1972). In addition, questionnaires with the same items have been employed in a large number of studies by other researchers (e.g., Astin, 1971; Astin and Panos, 1969; Bayer, 1969; Bayer et al., 1973; El-Khawar and Bisconti, 1973). The validity and reliability testing of these previous researchers as well as a short-term retest reliability study based upon the same questionnaire (Boruch and Creager, 1972) was relied upon to establish the reliability and validity of the scales of aspiration and academic self-concept being employed.

The analysis technique, built around a multiple regression model, was as follows. For each criterion, a stepwise algorithm was used to isolate the significant predictors for each of the two subsamples: male and female. All significant predictors revealed in the regression for either group were combined in a single independent variable pool. The regressions were then

recalculated for both men and women, forcing in each independent variable from that pool. The tables below report the coefficients for each of those variables, including some in each group which were not significant for one or the other sex. Thus, the results presented below rest upon use of identical sets of predictor variables.

To test for the presence or absence of an effect in one sex, partial correlations were computed, using the above predictors of the criterion as controls. These partials also were used in comparing the relative power of the two theories within each of the two subgroups.

Comparisons across the two groups required additional methodological considerations, however. Special problems, many of which have been outlined by Schoenberg (1972), arise in comparing statistical relationships computed on different samples. Some of those problems are eliminated when the two samples are subgroups from the same survey, as Schoenberg noted:

> The problems of comparable units of measure disappear when one is comparing subsamples within a single survey sample. It seems, then, that it would be standard practice to compare unstandardized regression coefficients in path analyses when observing differences in effects within subsamples. This practice, however, has not been the case; .... (Schoenberg, 1972: 8).

The main argument favoring the use of unstandardized coefficients in cross-sample comparison is that the variances of the key measures may differ from group to group. While inspection of the standard deviations of such key variables in our study as "college grades", "selectivity", and "aspirations" revealed that they were very similar in the two groups, it was concluded it was appropriate to compute and report the unstandardized coefficients.

III. FINDINGS.

A. Freshman-Sophomore Data.

1. Findings.

Table 1 presents the predictors of the follow-up academic ability self-rating of sophomore women and men. The data reported includes the unstandardized coefficient, "F to remove" and zero-order correlation of each predictor variable with the criterion. The F values can be interpreted as indicating the relative predictive power of each variable in the equation.

The input characteristics which were associated with a high follow-up academic ability self-rating were fairly consistent between the two samples and are set forth in Table 2. The initial (freshman-year) ability self-rating was the best predictor for both men and women, followed by scholastic aptitude and high school grades. However, the initial ability self-rating was a relatively better predictor for men than for women.

In addition to these calculations, the partial correlation of college selectivity and grades with the dependent variable were computed (Table 3). These partial correlations were included to test two of the hypotheses of the relative deprivation theory. According to that model, the partial between grades and self-concept should be positive, while the partial between college selectivity and self-concept should be close to zero. As can be seen from Table 3, the data for both men and women support these hypotheses.

Following these preliminary analyses, the predictors of the follow-up level of aspiration measure were computed. The

Table 1. Prediction of Follow-Up Academic Ability Self-Rating

(Freshman to Sophomore Year)

Independent Variable	Sign of Coefficient	WOMEN (Multiple R=.639, N=3,509 Students) Final Equation Unstandardized Coefficient	F Value	Zero-Order Correlation	MEN (Multiple R=.653, N=3,293 Students) Final Equation Unstandardized Coefficient	F Value	Zero-Order Correlation
Initial ability self-rating	+	.376	382.257*	+.581	.443	461.965*	+.611
Scholastic aptitude	+	.009	158.844*	+.534	.007	69.920*	+.526
High School grades	+	.060	41.398*	+.470	.051	29.992*	+.471
Published poem, story, etc.	+	.082	12.240*	+.181	.041	2.050	+.148
Presently have no religion	+	.161	12.231*	+.099	.117	8.861*	+.127
Parental income	+	.017	8.098*	+.108	.015	5.587*	+.142
Musical achievement	+	.077	7.130*	+.045	.069	3.168	+.038
Age	+	.029	2.304	-.083	.041	7.270*	-.113
National merit recognition	+	.041	1.590	+.292	.117	11.099*	+.354
Father's education	+	.001	.017	+.132	.022	6.352*	+.196
Member of school honor society	+	.002	.012	+.322	.058	3.925*	+.353

* Statistically significant ($p < .05$)

Table 2. Significant Predictors of Follow-Up Academic Ability Self-Rating (Freshman to Sophomore Year)

Women	Men
1. Initial Acad. Abil. Self-Rating (+)	1. Initial Acad. Abil Self-Rating (+)
2. Scholastic Aptitude (+)	2. Scholastic Aptitude (+)
3. High School Grades (+)	3. High School Grades (+)
4. Had Poem, Essay, etc. Published (+)	4. Won Certificate of Merit (+)
5. No Religion at Present (+)	5. No Religion at Present (+)
6. Parental Income (+)	6. Age (+)
7. Musical Achievement (+)	7. Father's Education (+)
	8. Parental Income (+)
	9. Member of High School Honor Society (+)

Table 3. Partial Correlations of College Selectivity and Grades with Follow-Up Academic Ability Self-Rating

(Freshman to Sophomore Year)

Independent Variable	WOMEN		MEN	
	Partial Correlation With the Criterion	Zero-Order Correlation	Partial Correlation With the Criterion	Zero-Order Correlation
College Selectivity[a]	-.010	+.287*	-.018	+.334*
College grades[b]	+.241*	+.457*	+.231*	+.421*

[a] Independent of variables listed in Table 1 and college grades.

[b] Independent of variables listed in Table 1 and college selectivity.

* Statistically significant ($p<.05$)

criterion used was a five-point measure based on a question which asked respondents to indicate the highest academic degree they intended to obtain. As before, the pool of predictor variables included a series of input measures which had been shown in previous studies to be related significantly to undergraduate aspirations. In addition, both the initial measure of aspiration level and the initial ability self-rating were included.

The variables which proved to be significant predictors of follow-up aspiration level for men and women are presented in Table 4. Clearly, the best predictor for both men and women is the initial level of aspiration. Beyond that, however, there are some intriguing differences between the sexes (Table 5). The two most powerful predictors for men beyond the pretest are the ability self-rating and high school grades, two concepts emphasized in the relative deprivation model. On the other hand, those women who maintain a high level of aspiration tended to have high aptitude test scores. In other words, while for men ability self-concept is an important predictor of aspirations, for women it is ability per se, as measured by national standards.

It is also interesting to note that the third most powerful predictor of follow-up educational aspirations of women was plans to get married while in college. Marital plans are negatively associated with high educational aspirations for women, while they have a very slight, but positive impact on men's educational aspirations. These results are consistent with findings of other researchers. Bayer (1969) has shown

Table 4. Prediction of Follow-Up Educational Aspiration

(Freshman to Sophomore Year)

Independent Variable	Sign of Coefficient	WOMEN (Multiple R=.565 N=3,509 students) Final Equation Unstandardized Coefficient	F Value	Zero-Order Correlation	MEN (Multiple R=.560 N=3,293 students) Final Equation Unstandardized Coefficient	F Value	Zero-Order Correlation
Initial level of aspiration measure	+	.443	829.127*	+.521	.377	657.273*	+518
Scholastic aptitude	+	.004	26.133*	+.316	.002	3.070	+.315
Marrying in college	varies	-.064	24.621*	-.165	+.011	.532	-.053
High School grades	+	.037	14.811*	+.271	.044	17.753*	+.312
Presently a Protestant	-	.088	13.134*	-.096	.027	.923	-.044
Published poem, story, etc.	+	.086	10.355*	+.151	.029	.669	+.118
Mother's education	+	.034	9.821*	+.129	.008	.362	+.115
Drank beer	-	.056	8.704*	-.031	.029	2.208	-.013
Participated in state debate contest	+	.108	7.878*	+.088	.125	6.246*	+.117
Age	+	.053	5.993*	-.046	.019	1.020	-.097
Parental income	+	.012	3.352	+.076	.028	13.150*	+.156
Reared as a Jew	+	.069	1.934	+.104	.178	12.211*	+.163
Placed in a state science contest	varies	-.069	1.023	+.029	+.156	5.369*	+.114
Initial academic ability self-rating	+	.015	.508	+.258	.107	18.197*	+.338
Elected president of a student organization	+	.028	1.203	+.092	.062	4.192*	+.136

* Statistically significant ($p<.05$)

Table 5. Significant Predictors of Follow-Up Educational Aspiration

(Freshman to Sophomore Year)

Women	Men
1. Initial Educational Aspiration (+)	1. Initial Educational Aspiration (+)
2. Scholastic Aptitude (+)	2. Initial Academic Ability Self-Rating (+)
3. Marry in College (-)	3. High School Grades (+)
4. High School Grades (+)	4. Parental Income (+)
5. Presently Protestant (+)	5. Jewish Reared (+)
6. Had Poem, Essay, etc. Published (+)	6. Part in State Debate Contest (+)
7. Mother's Education (+)	7. Placed in State Science Contest (+)
8. Drank Beer (-)	8. Elected President of Student Organization (+)
9. Part in State Debate Contest (+)	
10. Age (+)	

that not only do marital and family plans exert an independent effect on the educational aspirations of high school girls, but that for women they are also the best predictors of attrition from college (Bayer, 1968).

A test of the comparative explanatory power of the relative deprivation model and the environmental press model for each sex is possible by comparing the partial correlation of college selectivity and grades with aspirations, while controlling for the significant input predictors of aspirations and the initial ability self-rating. These results are presented in Table 6. For men, the partial correlation of grades with aspirations was extremely large. For women as well, grades were significantly related to the follow-up level of aspirations. College selectivity was not significantly related to the follow-up level of aspirations of either sex. These findings tend to support the contention of the relative deprivation theorists, although the theory finds stronger support among men than among women undergraduates.

Relative deprivation advocates reason further that when the follow-up self-concept measure (academic ability self-rating) is added to the control variables the partial between college grades and aspirations should vanish. The data indicate that for both men and women this partial is reduced when the self-rating is added to the control variables, but it nevertheless remains significant. In other words, while there is a relative deprivation effect, college grades have an impact above and beyond their influence through the intermediate psychological variable of academic ability self-rating.

Table 6. Partial Correlations Between Follow-Up Educational Aspiration and Both Selectivity and College Grades

(Freshman to Sophomore Year)

	WOMEN (N=3,509)		MEN (N=3,293)	
Control Variables	Selectivity	Grades	Selectivity	Grades
Input characteristics only[a]	.019	.055*	.018	.141*
Input characteristics[a] plus follow-up self-rating	.021	.047*	.025	.117*
Input characteristics,[a] follow-up self-rating and college grades	.033		.048*	

[a] Variables listed in Table 1.

* Statistically significant ($p<.05$)

Finally, the measure of college grades itself was added to the list of control variables to isolate the singular effects, if any, of college selectivity. When this was done, it was found that selectivity has a small, significant and positive effect on the educational aspirations of men. The partial for women also was positive and approached significance at the .05 level.

2. Discussion

While interpretations based on comparisons of the partial correlations between the two subsamples are methodologically hazardous (more in theory than in fact since the standard deviations differ little between the samples), it is interesting (in light of women's lower educational attainments, aspirations and Sewel's research indicating the relative disadvantage of women in support from significant others) to conjecture about some possible implications of these one-year findings. It would appear from these analyses that relative deprivation, while present for both groups, plays a much greater role among men than among women. This can be argued on the basis of both the significantly larger partial of college grades with aspirations for men and the larger decrease in this partial when the follow-up ability self-rating was added to the set of control variables.

If this interpretation is correct, it may explain some of the discrepancies revealed in previous research about environmental press and relative deprivation. That is, the degree to which relative deprivation was found operating in

previous studies may be a function of the percentage of men in the samples; the Davis (1966) sample, for example, was comprised entirely of men.

On the other hand, the data also indicate that environmental press is also more significant among men than women. Note that when all input characteristics, academic ability self-rating and grades are controlled, the partial correlation between college selectivity and educational aspirations is significant and positive for men. This suggests, as did Drew & Astin's (1972) research, that a complete model should allow for the simultaneous operation of both relative deprivation and environment press effects.

These findings, combined with the fact that academic ability (i.e., scholastic aptitude test scores) is the second most important determinant of the follow-up level of aspiration for women, while the academic ability self-concept is the second most important factor for men (the initial aspiration level was the best predictor for both sexes), also suggest that the processes which lead to the development of educational aspirations are fundamentally different for men and women. It is, at the very least, clear that neither relative deprivation nor environmental press provides a very satisfactory explanation of the development of college women's educational aspirations between the freshman and sophomore years.

Perhaps the salient reference group for women students is the national pool of undergraduate students, irrespective of the selectivity of the college they attend. It may be, therefore, that for women to aspire to higher levels of

education they need some sort of external sanction which tells them that they are intellectually worthy. This sanction may be provided by the "objective" measure of aptitude tests which indicate their intelligence relative to their age cohort nationally.

Similarly, the strong (negative) influence of plans to get married while in college upon the aspirations of women students suggests that some measure of socialization into the traditional female role needs to be included in such analyses. It may well be that for women it is just plain self-concept that is the best predictor of educational aspirations; in other words, regardless of their academic self-conceptions, women may hold a concept of themselves as people and the appropriate role for them which is inconsistent with high educational aspirations. As Horner (1971: 106) pointed out, "Whereas men are unsexed by failure...women seem to be unsexed by success."

B. Freshman-Senior Data.

1. Findings.

The analyses described above for the one-year (freshman-sophomore) data were also run on the four-year (freshman-senior) data. The expectation was that the patterns and intriguing differences that were observed in the one-year data would be greater (and, therefore, perhaps more intelligible) in the four-year data because the environmental and reference-group effects should be greater over a longer period of time. This expectation was not borne out. Before turning to that

data, however, the basic data on changes in the level of educational aspirations over the college years is presented.

Table 7 shows the freshman and senior year educational aspirations of male and female undergraduates. Not surprisingly, virtually all of both the men and women enter college with the intention of obtaining a bachelor's or advanced degree. Among men somewhat more than 70 percent of the freshmen aspire to more than the bachelor's, while women are divided 50-50 between those who seek only a bachelor's and those who intend to go on.

The college or university years have more of an impact upon the educational aspirations of women undergraduates than those of men. By their senior year about ten percent fewer men intend to obtain a bachelor's. Of these, about 60 percent (or 6.2 percent of all the men) aspire to higher degrees and about 40 percent (4.4 percent of the men) have lowered their aspirations. Among the women, more than one-fourth of the seniors no longer intend to obtain a bachelor's degree. Of these, two-thirds (17.5 percent of all the female undergraduates) seek a higher degree and one-third (8.8 percent) a lower degree. In spite of the larger upward shift in women's educational aspirations, men's aspirations are still higher. Most of the men whose aspirations were raised in college seek more than a master's upon graduation, while the vast majority of the women in the same situation seek only a master's. It was hoped that the reference group analysis would shed some light on the causes for these differences.

Table 8 presents the predictors of the follow-up academic ability self-rating of senior women and men. The input

Table 7. Freshman and Senior-Year Educational Aspirations

Educational Aspiration (Highest Degree Sought)	Women		Men		Total	
	Fr.	Sr.	Fr.	Sr.	Fr.	Sr.
None	2.4	10.1	2.9	6.2	2.7	8.0
Associate	1.1	2.2	0.4	1.5	0.7	1.9
Bachelor's	47.2	20.9	25.8	15.2	35.6	17.8
Master's	39.4	53.8	34.1	35.6	36.5	44.0
All Others	9.9	13.0	36.8	41.5	24.4	28.4
Total	100.0	100.0	100.0	100.0	99.9[a]	100.1[a]

[a] Total does not equal 100.00 due to rounding.

Table 8. Prediction of Follow-Up Academic Ability Self-Rating

(Freshman to Senior Year)

Independent Variable	Sign of Coefficient	Women (Multiple R=.584 N=3,892) Final Equation: Unstandardized Coefficient	F Value	Zero-Order Correlation	Men (Multiple R=.641 N=5,136) Final Equation: Unstandardized Coefficient	F Value	Zero-Order Correlation
Initial Acad. Abil. Self-Rating	+	.310	383.745*	+.523	.342	588.164*	+.586
High School Grades	+	.075	103.666*	+.437	.078	169.411*	+.492
Scholastic Aptitude	+	.007	97.114*	+.436	.006	120.324*	+.495
Parental Income	+	.016	10.998*	+.100	.017	16.063*	+.136
No Religious Rearing	+	.217	9.300*	+.077	.085	1.687	+.056
Jewish Reared	+	.095	6.541*	+.078	.090	9.730*	+.126
Part in State Debate Contest	+	.076	5.560*	+.048	.038	1.682	+.104
Won Certificate of Merit	+	.057	4.345*	+.268	.082	13.453*	+.343
No Religion at Present	+	.083	3.767	+.091	.069	5.223*	+.100
Major Part in Play	-	.036	2.808	+.005	.044	5.248*	+.012
Part in NSF Summer Program	+	.096	1.708	+.071	.040	0.900	+.144
Drank Beer	+	.007	0.224	-.011	.035	9.572*	-.007
Won Prize in Art Competition	+	.016	0.212	+.011	.087	4.880*	+.025

* Statistically significant ($p < .05$)

characteristics that were associated with a high follow-up academic ability self-rating were fairly consistent between the two samples and are set forth in Table 9. The initial (freshman-year) ability self-rating was the best predictor for both men and women, followed by scholastic aptitude and high school grades. These results are also consistent with those found with the one-year data (Tables 1 and 2), except that the relative predictive power of scholastic aptitude and high school grades was reversed, a difference that is not significant since the zero-order correlation between scholastic aptitude and high school grades is fairly high (R=.325 for women and R=.327 for men). As was noted in the one-year data, the initial academic ability self-rating was a relatively better predictor of the senior-year self-rating for men than for women.

In addition to these calculations, the partial correlation of college selectivity and grades with academic self-concept were computed (Table 10) in order to test two of the hypotheses of relative deprivation theory. According to that model, the partial between college grades and academic self-concept should be positive, while the partial between college selectivity and self-concept should be close to zero. The freshman-sophomore data (Table 3) had supported both of these hypotheses. The four-year data supports the first: the partial correlation between grades and academic self-concept is positive and substantial for both men and women. However, the partial between college selectivity and self-concept is also statistically significant for both men and women. From this

Table 9.

Significant Predictors of Follow-Up

Academic Ability Self-Rating

(Freshman to Senior Year)

	Women		Men
1.	Initial Acad. Abil. Self-Rating (+)	1.	Initial Acad. Abil. Self-Rating (+)
2.	High School Grades (+)	2.	High School Grades (+)
3.	Scholastic Aptitude (+)	3.	Scholastic Aptitude (+)
4.	Parental Income (+)	4.	Parental Income (+)
5.	No Religious Rearing (+)	5.	Won Certificate of Merit (+)
6.	Jewish Reared (+)	6.	Jewish Reared (+)
7.	Part in State Debate Contest (+)	7.	Drank Beer (+)
8.	Won Certificate of Merit (+)	8.	Major Part in Play (-)
		9.	No Religion at Present (+)
		10.	Won Prize in Art Competition (+)

Table 10.

Partial Correlations of College Selectivity and Grades with Follow-Up Academic Ability Self-Rating

(Freshman to Senior Year)

	Women		Men	
	Partial Correlation with Criterion	Zero-Order Correlation	Partial Correlation with Criterion	Zero-Order Correlation
College Selectivity[a]	+.266	+.207	+.484	+.356
College Grades[b]	+.575	+.465	+.622	+.478

[a] Independent of variables listed in Table 8 and college grades.

[b] Independent of variables listed in Table 8 and college selectivity.

analysis it appears that relative deprivation theory is correct in emphasizing the importance of college grades as a determinant of academic self-concept, but incorrect in excluding the effect of college selectivity.

Following these preliminary analyses, the predictors of senior-year educational aspirations were computed. As in the earlier computations, the pool of predictor variables included a series of input measures which had been shown in previous studies to be related significantly to undergraduate aspirations. In addition, the initial (freshman-year) measure of both aspiration level and academic ability self-rating were included.

The variables that were shown to be significant predictors of senior-year educational aspiration for men and women are presented in Table 11 and rank-ordered in Table 12. Again, far and away the best predictor for both men and women is the initial (freshman-year) level of aspiration. Beyond that, most of the differences between men and women found in the one-year data disappeared in the four-year data. Indeed, for all practical purposes, only the well-documented negative effect of marital plans on women's educational aspirations remained as a sex-difference in the significant predictors of senior-year educational aspirations.

As with the one-year data, a test of the comparative explanatory power of the relative deprivation and environmental press theories was made by comparing the partial correlation of college selectivity and grades with educational aspirations, while controlling for the significant predictors of

Table 11. Prediction of Follow-Up Educational Aspiration

(Freshman to Senior Year)

	Sign of Coefficient	Women (Multiple R=.336 N=3,892) Final Equation Unstandardized Coefficient	F Value	Zero-Order Correlation	Men (Multiple R=.326 N=5,136) Final Equation Unstandardized Coefficient	F Value	Zero-Order Correlation
Initial Education Aspiration	+	.297	185.562*	+.277	.202	164.566*	+.255
High School Grades	+	.076	26.241*	+.210	.067	32.272*	+.228
Scholastic Aptitude	+	.004	10.321*	+.188	.005	29.411*	+.224
Marry in College	-	.057	8.876*	-.105	.014	0.764	-.061
Jewish Reared	+	.183	6.076*	+.084	.123	4.669*	+.082
Had Poem, Essay, etc. Published	+	.087	5.204*	+.083	.044	1.429	+.069
Member of Honor Society	+	.071	3.198	+.156	.018	0.230	+.157
Protestant Reared	-/+	.059	2.853	-.051	.030	0.970	+.006
Age	-	.046	2.169	-.069	.054	6.061*	-.092
No Religion at Present	+/-	.112	2.022	+.045	.107	4.095*	-.002
Elected Pres. of Student Org.	+	.008	0.044	+.040	.066	4.388*	+.094
Parental Income	-/+	.001	0.011	+.019	.022	8.616*	+.089

* Statistically significant ($p < .05$)

Table 12.

Significant Predictors of Follow-Up Educational Aspiration

(Freshman to Senior Year)

	Women		Men
1.	Initial Educational Aspiration (+)	1.	Initial Educational Aspiration (+)
2.	High School Grades (+)	2.	High School Grades (+)
3.	Scholastic Aptitude (+)	3.	Scholastic Aptitude (+)
4.	Marry in College (-)	4.	Parental Income (+)
5.	Jewish Reared (+)	5.	Age (-)
6.	Had Poem, Essay, etc. Published (+)	6.	Jewish Reared (+)
		7.	Elected President of Student Organization (+)
		8.	No Religion at Present (-)

aspirations and the initial academic ability self-rating. The results of this test are set forth in Table 13. For both men and women the partial correlation of grades with aspirations was extremely large. College selectivity, however, was also significantly related to follow-up level of aspirations of both sexes, although not as strongly so as grades. The first finding tends to support relative deprivation theory for both men and women, although the latter finding tends to undercut relative deprivation notions.

Relative deprivation theorists reason further that when the follow-up academic ability self-rating is added to the control variables the partial correlation between college grades and educational aspirations should vanish. The data, however, show that for both men and women the partial is not reduced at all, and even increases slightly, when academic self-concept is added to the control variables. In other words, while there appears to be a relative deprivation effect, that effect operates directly through college grades and not through the intermediate psychological variable of academic self-concept as relative deprivation theorists hypothesize.

Finally, the measure of college grades itself was added to the list of control variables to isolate the singular effects, if any, of college selectivity. When this was done, it was found that selectivity continues to have a significant and positive effect on the educational aspirations of both men and women, although the effect is noticeably stronger for men than women.

Table 13.

Partial Correlations Between Follow-Up Educational Aspiration and Both College Selectivity and Grades

(Freshman to Senior Year)

Control Variables	Women		Men	
	Selectivity	Grades	Selectivity	Grades
Input Characteristics[a] only	+.145	+.350	+.210	+.380
Input characteristics[a] plus follow-up academic ability self-rating	+.146	+.352	+.213	+.384
Input characteristics[a], follow-up academic ability self-rating and college grades	+.150		+.220	

[a]Variables listed in Table 11.

2. Discussion

When the four-year data failed to reveal any significant sex differences, such as those found with the one-year data, other than the strong negative effect of women's marital plans on their educational aspirations, all of the foregoing analyses were rerun using a larger pool of potential predictor variables. The thought behind this was that perhaps some of the intriguing sex differences detected in the first year of college were operating in the senior year but through some other or intermediate variable. The results showed no meaningful variations between men and women undergraduates in the significant predictors of senior-year academic ability self-rating. On the predictors of senior-year educational aspirations, however, some variations reappeared. For men scholastic aptitude replaced high school grades as the second most powerful predictor of follow-up educational aspirations, although there was very little difference in the relative predictive power of the two variables. For women, scholastic aptitude dropped from being the third best predictor to the sixth best predictor. Participation in the peace corps or vista, ranking of the importance of being a community leader and jewish reared occupied the third through fifth positions on the list of significant predictors. Not too much can be made of this because the F values of these four variables only ranged from a high of 14.462 for peace corps-vista participation to a low of 11.352 for scholastic aptitude.

Using the longer list of predictor variables to test the relative explanatory power of relative deprivation and environmental press theory yielded the same results as with the shorter list of predictors. Indeed, the partial correlations were almost the same to the third decimal. There appears to be a relative deprivation effect, but that effect seems to operate directly through college grades and not through the intermediate psychological variable of academic self-concept. There also continues to be an environmental press effect, as college selectivity has a significant and positive effect on educational aspirations even when college grades are controlled. That effect is noticeably stronger for men than for women.

IV. CONCLUSIONS AND RECOMMENDATIONS.

At the outset of this project it was expected that the research would reveal a differential impact of college and university experience on the educational aspirations of men and women undergraduates. This expectation was essentially disproved. Although variations were found between men and women after one year of college, these differences appear largely to "wash out" after four years in college. The significant predictors of senior-year academic self-concept are the same for men and women. The three most important predictors of senior-year educational aspirations are also the same for men and women. Beyond this, marital plans exert

a strong negative influence on the educational aspirations of women undergraduates that they do not have on the educational aspirations of males.

The explanation for the differences found with the one- and four-year data may lie in the nature of the college experience. It may be that college impacts are actually greatest in the first year. After that, the effects may tend to become more general and diffuse and, therefore, less noticeable. This is certainly a question that merits further study.

The test of the relative explanatory power of relative deprivation and environmental press theory again showed few sex differences. For both men and women both relative deprivation and environmental press appear to be operating in influencing senior-year educational aspirations. The relative deprivation effect is a strong one, but, contrary to the theory, appears to operate directly through college grades and not through the intermediate psychological variable of academic self-concept. Even when college grades are controlled, in addition to all the other significant predictor variables, college selectivity continues to have a significant and positive effect on educational aspirations, although this effect is noticeably stronger for men than for women.

This latter finding suggests, as did the results with the one-year data, that some kind of external sanction, or sign of worth, such as that provided by grades or aptitude test scores, may be more important for women than for men.

Men, on the other hand, may be more influenced by the "press" of the environment: if they are in a highly selective college, their aspirations may tend to approach those of their classmates even when the other predictors suggest they would be lower.

That both relative deprivation and environmental press effects were found in both the four- and one-year data points clearly to the need for further research to attempt to define more precisely the relationship between the two effects and to elaborate the interaction between the two. A sample of nonwhites, ideally separately stratified by sex, should be studied as well in order to determine if the relationships uncovered here hold true for nonwhite populations. Since one finding of previous research was that the relative efficacy of the two theories varied as a function of how the dependent variable was defined, it would be wise to replicate these analyses using other definitions of educational aspirations.

Finally, it is vital to continue these types of analyses with longitudinal files based on a larger time gap, e.g., ten years after the student entered college. Just as the research reported here suggests that some college sex-differential effects may "wash out" over the four years of college, it is possible that sex differences will reemerge later and these differences may tell us much about the processes of aspiration formation.

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